1848MNRAS...8...52S

to avoid error in their use, are particularly noticed. The construction of the Standard Barometer is pronounced to be "admirable," and the noble Library* considered "to be probably the most complete in the world in reference to its peculiar subjects."

On the Transit Instrument at the Bombay Observatory.

By Capt. Shortrede.

Captain Shortrede gives a short account of the instrument, its mounting, &c. before he became acquainted with it. Such mistakes as he relates can scarcely occur a second time, and therefore they may be passed over in silence.

When Capt. Shortrede visited the Bombay Observatory during his trigonometrical operations, he learned that the instrument was considered incurably defective. A full consideration, however, led him to a different opinion; and as he is himself a workman, and from his former connexion with the Mint as assistant-engineer, had great facilities for procuring the best assistance which the country afforded, he undertook the re-erection of the instrument, which, his his own services being gratuitous, would not exceed 300 rupees. This offer being communicated to the Governor, the sum specified was readily advanced.

The stone pillars are two feet square: the upper part of one had been greatly split and shaken by unskilful perforations; and Capt. Shortrede directed the upper 15 inches of each to be taken off. These he replaced by two blocks of Puna stone, which are 18 inches square at bottom, sloping to 12 inches square at top. This size seemed sufficient for steadiness, and was as large as could well be procured at Puna or transported to Bombay. Due care was taken to attach the blocks perfectly to the piers.

The new Y plates were of bell-metal, cast at the Mint, and well and truly worked; particular care was taken that the plate bore truly on the stone near the screw-holes.

The pivots of the axis are supported throughout their length; the motions for every adjustment were found free and without shake. Instead of the usual Y, Capt. Shortrede adopted a collar bearing, which he intended should exactly fit the pivots. The workman, however, made them somewhat large, and, as he finished them by grinding, not quite true. Having no time to get new collars made, Capt. Shortrede had a groove cut out at the bottom of the bearing and at the top of the covering piece, in each of which a slip of wash-leather was secured by lac-varnish. These

---

* A Catalogue of this Library has been recently published, *Librorum in Bibliothecâ Speculæ Pulcovensis contentorum Catalogus Systematicus*, Petropoli Typis Acad. Scient. 1845, 8vo.

Downloaded from http://mnras.oxfordjournals.org/ at Indiana University Bloomington Libraries on March 16, 2015

© Royal Astronomical Society • Provided by the NASA Astrophysics Data System

do not interfere with the bearing, and they stop the dust before it comes to the bearing. The constant daily shower of sand from the sea-breeze and neighbouring shore would soon destroy any pivot working in the ordinary way, and this consideration suggested the collar mounting, which was intended to be as close fitting as possible. No iron was used in the work, the liability to rust in such a situation makes the material unsuitable.

The instrument thus fitted up continues to work satisfactorily. There are no counterpoises, Capt. Shortrede (luckily perhaps) not having had time to procure them before quitting Bombay.

Letter from Mr. Dawes announcing the Detection of Two new Double Stars.

"On December 12th, 1847, I observed 42 (*c*) *Orionis* to be close double; magnitudes 5 and 9; distance about 1″·8. An elegant object which could scarcely have been overlooked by the Herschels and Struve, if it has not recently come out.

"On January 15th, 1848, η *Orionis* was discovered to be close double; the magnitudes of the components being 4 and 5, and distance 1″. It is a beautiful object of its class, and can scarcely fail to prove a *binary* system. Sir W. Herschel observed this star in 1781, and, on account of a small star distant about two minutes in the n. f. quadrant, entered it as vi. 67. But he did not notice it as close double; neither did Struve at Dorpat. Yet, with a 6-inch aperture, it is now perfectly separable. As, therefore, it may be an object of much interest, the attention of double-star observers is specially requested for it during its present apparition."

Longitude of Port Essington. By Mr. H. Breen, Jun. of the Royal Observatory, Greenwich.

The meridian passages of the moon from which the following longitude is deduced were observed by Capt. O. Stanley, R.N. F.R.A.S. The original observations were forwarded some time ago to the Society by Capt. Stanley, and Mr. Breen recently undertook their reduction, which he has performed thus:—

He first corrected the observations for errors of azimuth and level, the instrument being supposed to be adjusted in collimation. From the transits thus corrected and an approximate longitude, the errors and rates of the mean solar chronometer on the days of observation were computed, and from these data the observed right ascension of the moon was deduced. Mr. Breen then interpolated the moon's right ascension from the *Nautical Almanac* (*Moon-Culminating Stars*) for two assumptions of longitude differing one minute, with fourth differences inclusive; and finally applied the correction which was required to satisfy the observations of Green-

Downloaded from http://mnras.oxfordjournals.org/ at Indiana University Bloomington Libraries on March 16, 2015

© Royal Astronomical Society • Provided by the NASA Astrophysics Data System